

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-14 are pending in this application. Claim 1 is independent. The remaining claims depend, directly or indirectly, from claim 1.

Objections

The Examiner has objected to the specification of the present application because the abstract was not provided on a separate sheet. A new abstract on a separate sheet is attached to this reply. No new matter is added by way of the new abstract. Accordingly, withdrawal of this objection is respectfully requested.

Claims 13 and 14 are objected to due to grammatical errors. Claims 13 and 14 have been amended by this reply to correct the grammatical errors in accordance with the Examiner's suggestions. Accordingly, withdrawal of this objection is respectfully requested.

Claim Amendments

The claims in the present application have been amended to clarify the present invention as recited. Specifically, independent claim 1 has been amended to describe a digital audiovisual transmission system that comprises a multiplexer and a scrambling unit. Support for these amendments may be found, for example, on page 6, lines 9-14 of the specification. Dependent claims 2-14 were amended in accordance with the amended claim 1 to recite a digital audiovisual system. It is believed that the amendments made to the claims by this reply do not raise any new issues for consideration.

Rejections under 35 U.S.C. § 103

Claims 1 and 10-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,069,956 ("Kurihara") in view of U.S. Patent No. 5,870,484 ("Wasilewski").

Claim 1 has been amended by this reply to clarify the present invention as recited. To the extent that this rejection may still apply to the amended claims, this rejection is respectfully traversed.

The claimed invention relates to a method in which a discrete scrambler unit receives, via a dedicated input, an already assembled transport stream. This solution provided in the claimed invention facilitates the management of communications between each of the elements of the system through the division of functionality between separated scrambling and multiplexing parts of the system.

Claim 1 has been amended to describe a digital audiovisual transmission system that comprises a multiplexer and a scrambling unit. Specifically, claim 1 recites a scrambling unit that is physically separate from the multiplexer, and comprises an input, an output, and a scrambling device. Amended claim 1 more clearly shows that the scrambling aspect of the claimed invention is independent of the multiplexer operation, *i.e.*, that the scrambling unit is physically separate from the multiplexer in the digital audiovisual system and also independent in operation. Rather than having a system in which the scrambling of data is carried out by the multiplexer at the same time it multiplexes together various data streams to form a single transport stream, the claimed invention emphasizes that the scrambling unit operates without influence from information transmitted by the multiplexer.

The Examiner asserts that Kurihara discloses a scrambling unit comprising an input for receiving an assembled transport packet stream that is physically separate from a multiplexer, and an output for sending the scrambled transport stream to a transmitter for transmission. Application respectfully disagrees with this assertion. Kurihara relates to a method and apparatus for detecting a changeover or change of a scramble key, based on a version number and information indicator data. Figure 1 shows a block diagram of the scrambler in Kurihara. The scrambler takes as input an unscrambled data stream and outputs an encrypted data stream. The scrambler includes a time division frame monitoring circuit, a time division frame controller, an application data encryption processing circuit, and a scramble key managing table. Based on a current version number received from the time division frame monitoring circuit, the time division frame controller compares the current version number with the previously received version number. If the version numbers are different, then a decision is made that the scramble key is changed and updated (see, *e.g.*, Figure 1 of Kurihara).

With respect to the rejection of the claims, the division of functionality obtained by the digital audiovisual system as claimed in the present invention may not be obtained from the disclosure of Kurihara, because Kurihara uses the multiplexer to insert scrambling key information in the data stream, in order to control the scrambling operation performed on the data stream. The scrambling key information disclosed in Kurihara is produced in a scramble key changeover controller subsequent to verification of the scrambling key in the scrambler, and then transmitted to the multiplexer. Kurihara discloses “The input signal to the scrambler 1 is an unscrambled data stream which corresponds to data stream generated by a multiplexing on a time-division basis the application data such as video, audio, or the like data and *inserting additionally time division frames for ECM data* (emphasize added)” (see, *e.g.*, col. 5, lines 12-17 of Kurihara). The time division frames are monitored in the scrambler by the time-division frame monitoring circuit 12 to acquire the identified version and number and the information indicator contained in the ECM data (col. 5, lines 21-27). The acquired information is used to select a scrambling key from the scramble key managing table 15. The selected scrambling key, as indicated by the time-division frame output by the multiplexer, is used by the scrambler to scramble the data stream. (See col. 5, lines 27-58).

The obtaining and insertion of scrambling key information in the time-division frames in the multiplexer is explicated in relation to Fig. 2 of Kurihara. The device shown in Fig. 2 includes the scrambler device, the multiplexer and the scramble key changeover controller. After having validated the scramble key through communication with the scramble key managing table (15) of the scrambler, the ECM time-division frame ID/Scramble key managing circuit 19 of the scramble key changeover controller transmits the information concerning the scrambling key to the ECM generating circuit 17, which on turn sends the ECM data to the multiplexer 3 (see, *e.g.*, col. 6, line 65 – col. 7, line 13). The ECM data is multiplexed together with other data into the unscrambled data stream to be output to the scrambler (see col. 7, lines 14-22).

Thus, it is clear that the scrambler in Kurihara operates in *dependence* of the multiplexer, due to the ECM data production and insertion mechanism used, and due to the physical dependence established between the scrambler and the multiplexer through the scramble key changeover controller. In view of the above, it is clear that Kurihara cannot possibly disclose that the scrambling of the transport packet stream by the scrambling unit is independent of the multiplexer operations, as required by amended independent claim 1.

Further, Applicant asserts that Kurihara teaches away from the invention. Specifically, Kurihara explicitly requires an intertwining of multiplexing and scrambling. For example, Kurihara requires the data exchange loop between the scrambler and the multiplexer in both directions from the scrambler to the multiplexer, and back from the multiplexer to the scrambler through the data stream, and more particularly the time-division frames contained therein. Thus, Kurihara explicitly discloses that the multiplexer scrambles data at the same time it multiplexes together the various data streams to form the single transport stream.

Moreover, Wasilewski fails to disclose or suggest that which Kurihara lacks. Wasilewski teaches a method and an apparatus for providing conditional access in networks with a multiplicity of service providers (SPs). However, Wasilewski is completely silent regarding a digital audiovisual system including a scrambler unit and a multiplexer, wherein the scrambler is *physically separate* from the multiplexer and the multiplexer operation is *independent* of the scrambler operation, as required in amended claim 1.

In addition, as explained in the response to the previous Office action, Applicant asserts that there is no motivation to combine Kurihara and Wasilewski to achieve the claimed invention. While Kurihara and Wasilewski both generally relate to audiovisual communication systems, these references do not provide any motivation to be combined. In fact, these references teach away from one another in that the teachings of Kurihara “circumvent” security measures, whereas Wasilewski seeks to increase/strengthen security measures. Because the two references address completely unrelated problems and have divergent teachings, one of ordinary skill in the art would not be inclined to combine Kurihara and Wasilewski.

In view of the above, it is clear that Kurihara and Wasilewski, whether considered separately or in combination, fail to render the amended independent claim 1 obvious. Dependent claims 10-12 are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of an article entitled “Performance Study of a Selection Encryption Scheme for the Security Networked, Real-Time Video,” authored by T. Maples and G. Spanos (hereinafter “Maples”). This rejection is respectfully traversed. Claim 2 has been

amended by this reply to recite a digital audiovisual system in accordance with the amendments made to independent claim 1, from which claim 2 depends. For at least the reasons described above, neither Kurihara nor Wasilewski disclose the limitations of amended independent claim 1, and therefore do not render claim 1 obvious. Further, Maples fails to disclose or suggest that which Kurihara and Wasilewski lack. In particular, Maples does not disclose or suggest a scrambler unit that is physically separate from a multiplexer, where the multiplexer operation is independent of the scrambler operation. Thus, it is clear that claim 2 is patentable over Kurihara, Wasilewski, and Maples, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 3 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 6,233,253 (“Settle”). This rejection is respectfully traversed. Claims 3 and 4 are patentable for at least the same reasons described above. Settle fails to disclose or suggest the limitations of amended independent claim 1 that Kurihara and Wasilewski lack. Further, as stated in the previous response to an Office Action, Settle is assigned to Thomson Licensing S.A., who is also the assignee of the present invention. Therefore, Settle cannot be applied as valid prior art under §103(a), rendering this rejection moot. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 6,424,361 (“Chapuis”). This rejection is respectfully traversed. Again, Chapuis fails to disclose or suggest the limitations of amended independent claim 1 that Kurihara and Wasilewski lack. Further, Chapuis is assigned to Thomson Licensing S.A., who is also the assignee of the present invention. Therefore, Chapuis cannot be applied as valid prior art under §103(a) rendering this rejection moot. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 5,991,912 (“Mao”). This rejection is respectfully traversed. As described above, Kurihara and Wasilewski fail to disclose or suggest the limitations of amended independent claim 1, and Mao fails to teach or suggest that which Kurihara and Wasilewski lack. In particular, Mao fails to disclose or suggest a

multiplexer physically separate from a scrambler unit, where the operations of both are independent as well. Thus, it is clear that claims 6 and 7 are patentable over Kurihara, Wasilewski, and Mao, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 6,233,256 ("Dieterich"). This rejection is respectfully traversed. As described above, Kurihara and Wasilewski fail to disclose or suggest the limitations of amended independent claim 1, and Dieterich fails to teach or suggest that which Kurihara and Wasilewski lack. In particular, Dieterich fails to disclose or suggest a multiplexer physically separate from a scrambler unit, where the operations of both are independent as well. Thus, it is clear that claims 6 and 7 are patentable over Kurihara, Wasilewski, and Dieterich, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 5,923,812 ("Sakazaki"). This rejection is respectfully traversed. As described above, Kurihara and Wasilewski fail to disclose or suggest the limitations of amended independent claim 1, and Sakazaki fails to teach or suggest that which Kurihara and Wasilewski lack. In particular, Sakazaki fails to disclose or suggest a multiplexer physically separate from a scrambler unit, where the operations of both are independent as well. Thus, it is clear that claims 6 and 7 are patentable over Kurihara, Wasilewski, and Sakazaki, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 6,151,394 ("Tatebayashi"). This rejection is respectfully traversed. As described above, Kurihara and Wasilewski fail to disclose or suggest the limitations of amended independent claim 1, and Tatebayashi fails to teach or suggest that which Kurihara and Wasilewski lack. In particular, Tatebayashi fails to disclose or suggest a multiplexer physically separate from a scrambler unit, where the operations of both are independent as well. Thus, it is clear that claims 6 and 7 are patentable over Kurihara,

Wasilewski, and Tatebayashi, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

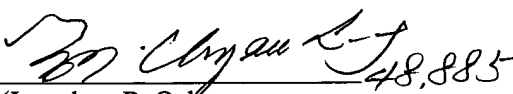
Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Wasilewski, and further in view of U.S. Patent No. 4,969,188 ("Schobi"). This rejection is respectfully traversed. As described above, Kurihara and Wasilewski fail to disclose or suggest the limitations of amended independent claim 1, and Schobi fails to teach or suggest that which Kurihara and Wasilewski lack. In particular, Schobi fails to disclose or suggest a multiplexer physically separate from a scrambler unit, where the operations of both are independent as well. Thus, it is clear that claims 6 and 7 are patentable over Kurihara, Wasilewski, and Schobi, whether considered separately or in combination. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 11345/015001).

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Respectfully submitted,

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